dioxide has completely different physical characteristics from that of amorphous silicon dioxide. Amorphous silicon dioxide has only insulating properties and amorphous silicon dioxide thin film is often used as an insulation film for semiconductor devices. On the other hand single crystalline silicon dioxide has resonance an piezo electric characteristics.

The claims relate to quartz thin film. The applied references do not describe or suggest claims 1 and 2 as originally filed or those claims presented herein. This quartz thin film is produced by a new method; both the new method and the product of the claims are undescribed by the art of record. The quartz film of the invention can be utilized in electronic components such as oscillators, vibrators, high frequency filters and surface acoustic wave elements. See page of the application and new claims 3 and 20. New claims 14 and 9-12 [and 15-17] referring to substrate and buffer layers are disclosed at page 7 first full paragraph and third paragraph. The reference to X-ray peak is supported by the specification at page 12 last three lines.

Also enclosed is a leaflet showing a method of making synthetic quartz which discloses the Hydrothermal Manufacturing Method. The quartz is grown in an autoclave under high pressure and temperature. The resulting synthetic quartz is mechanically sliced and ground to make the quartz pellets.

Applicants respectfully traverse the rejection of Claims 1 and 2 over Sherman or Ohtani et al. under 35 U.S.C. 102(b). The criterion of an anticipatory reference is contained in a header of the Manual of Patent Examining Procedure [hereinafter "MPEP"]. Specifically, Section 2131 of the MPEP contains the 'header':

"TO ANTICIPATE A CLAIM, THE REFERENCE MUST TEACH EVERY ELEMENT OF THE CLAIM".

In applicants' view, an important difference between the claims and prior art has been ignored. Thus, the art does not teach every element of the claims [cf. MPEP Section 2131].

Sherman, at column 7 lines 27-32 discloses a SiO2 thin film. However, Sherman's film is not a quartz thin film. Rather is an amorphous thin film. Sherman discloses a method of producing amorphous SiO2 thin film. Sherman first produces a silicion thin film and "the resulting silicon can then be converted to silicon dioxide by exposure to Oxygen. In this way a silicon dioxide film can be grown monolayer by monolayer." Thus, the Sherman product, as described above , cannot be quartz film.

Ohtani et al. disclose silicon dioxide film 504, which constitutes an insulating layer (a gate insulating film) and the layer is amorphous. Please refer to lines 53-65 at column 11.

Hochido et al. (cited on the PTO 892) disclose a method of forming a Bi-layered ferroelectric thin film on a substrate Quartz films are not shown.

Reconsideration and an early allowance are respectfully solicited.

Respectfully submitted,

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In re application of:
Naoyuki TAKAHASHI et al.
Serial No. 09/767,154
Filed: January 23, 2001

APPENDIX-MARKED UP COPY OF CLAIM AMENDMENTS

1. (Amended) A [crystal] quartz thin film made by depositing at least one silicon alkoxide selected from the group consisting of tetramethoxysilane, tetraethoxysilane, tetrapropoxysilalne and tetrabutoxysilane on a substrate under atmospheric pressure.

2. (Amended) A [crystal] quartz film as claimed in claim 1, which is a [crystal] quartz epitaxial thin film.